REMARKS

Applicants have amended their claims in order to further clarify the definition of various aspects of the present invention. In particular, Applicants have amended claim 1 to recite that the titanium dioxide is included in the composition in an amount of 0.001 to 10% by weight; claim 1 has been further amended to recite that the thickening agent is included in the composition in an amount of 1 to 5% by weight, and that the composition has a viscosity in a range of 1000 to 100,000 centipoise. In connection with amendments to claim 1, note, for example, pages 9, 12 and 13 of Applicants' specification.

In addition, Applicants are adding new claims 21-30 to the application. Claims 21 and 22, dependent respectively on claims 1 and 21, respectively recites that the composition further includes water, and recites that the chemical compound generating hydrogen peroxide in aqueous solution is hydrogen peroxide. Claims 23 and 24, dependent respectively on claims 22 and 23, respectively recites that the thickening agent is hectorite; and defines a method for bleaching a discolored tooth including applying the bleaching composition of claim 23 onto the surface of a discolored tooth and irradiating the applied surface with light. Claims 25 and 26, dependent respectively on claims 23 and 1, respectively defines an amount of hydrogen peroxide included in the composition, and recites that the titanium dioxide is particulate titanium dioxide coated with calcium phosphate. Claims 27 and 28, each dependent on claim 1, respectively defines a particle diameter of particles of the titanium dioxide, and further defines the amount of titanium dioxide in the composition. Claims 29 and 30, each dependent on claim 1, respectively further defines the amount of titanium dioxide in the composition, and further defines the

viscosity of the composition.

With respect to the newly added claims, note, for example, pages 9-13 of Applicants' specification.

The election-of-species requirement set forth in the last paragraph on page 6, and on page 7, of the Office Action mailed January 15, 2003, is noted. Applicants respectfully elect as the tooth-bleaching compound, hydrogen peroxide; and respectfully elect as the thickening agent, hectorite. Note, for example, claims 22 and 23, respectively reciting that the chemical compound generating hydrogen peroxide in aqueous solution is hydrogen peroxide, and that the thickening agent is hectorite. Pursuant to the requirement by the Examiner in the last paragraph on page 7 of the Office Action mailed January 15, 2003, it is respectfully submitted that, of the claims presently in the application, claims 1-30 (that is, all claims presently pending in the above-identified application) read on the elected species.

The contentions by the Examiner on pages 2-4 of the Office Action mailed January 15, 2003, that claims 1-16 of U.S. Patent No. 6,231,343 "are seen to raise an issue of obviousness-type double patenting" for all claims in the above-identified application; and that copending claim 1 of U.S. Patent Application No. 10/109,868, filed April 1, 2002 (U.S. Patent Publication No. 2002/0177097) "is seen to raise [an] issue of obviousness-type double patenting of method claims 9, 10, 17, 18 and 20" in the above-identified application, are noted, but are not understood. Where the Examiner is of the opinion that separate patentable inventions are not defined, the Examiner may reject the claims, either actually or provisionally, under the judicially created doctrine of obviousness-type double patenting. On the other hand, the Examiner has not herein rejected all of the

claims under the judicially created doctrine of obviousness-type double patenting, the Examiner only stating that the respective patent and publication "raise the issue" of obviousness-type double patenting. Since a rejection has not been made on pages 2-4 of the Office Action mailed January 15, 2003, either actually or provisionally, it is respectfully submitted that Applicants need not address this.

In any event, suffice it to say that Applicants respectfully submit that the presently claimed subject matter, including the components thereof, which include the thickening agent, and the specific amounts of titanium dioxide and thickening agent recited in all the claims, especially together with the viscosity of the composition, would not have been obvious over the subject matter claimed in U.S. Patent No. 6,231,343; and, as discussed infra with respect to the provisional obviousness-type double patenting rejection on page 5 of the Office Action mailed January 15, 2003, it is respectfully submitted that the method of using the composition of the present claims would have neither been taught nor would have been suggested by the system claimed in Application No. 10/109,868, filed April 1, 2002, published as Patent Application Publication No. 2002/0177097. In this regard, note that neither of U.S. Patent No. 6,231,343 or Application No. 10/109,868 claim a composition including, inter alia, a thickening agent, much less amounts of titanium dioxide and of the thickening agent as in the presently claimed composition and method, and neither of the respective patent and published patent application recite in the claims a viscosity of the composition.

Applicants respectfully traverse the rejection of method claims 9, 10, 17, 18 and 20 under the judicially created doctrine of obviousness-type double patenting over claims 1-16 of U.S. Patent No. 6,231,343. It is respectfully submitted that the

present clams are patentably distinct from claims 1-16 of U.S. Patent No. 6,231,343, such that the obviousness-type double patenting rejection is clearly improper.

In this regard, Applicants initially respectfully direct the Examiner's attention to the election-of-species requirement on pages 6 and 7 of the Office Action mailed January 15, 2003, in the above-identified application. This election-of-species requirement sets forth that the various thickening agents define patentably distinct species. On the other hand, note that U.S. Patent No. 6,231,343 defines a bleaching composition, a method for bleaching and a system for bleaching teeth, which does not even recite a thickening agent. If the various thickening agents define patentably distinct specifies, then clearly the absence of a thickening agent defines a patentably distinct species from the present claims, each reciting use of a composition that includes a thickening agent.

Clearly, claim 23, for example, reciting that the thickening agent is hectorite, must define a patentably distinct species from the subject matter claimed in U.S. Patent No. 6,231,343, which does not even recite a thickening agent, in view of the position taken by the Examiner in the election-of-species requirement.

In any event, it is respectfully submitted that the subject matter claimed in U.S. Patent No. 6,231,343, which does not set forth an amount of titanium dioxide, or recite a thickening agent or an amount thereof, or viscosity of the composition, would have neither disclosed nor would have suggested a method as in the present claims, which uses a composition defining amounts of titanium oxide and a thickening agent, as well as viscosity of the composition.

In connection with the obviousness-type double patenting rejection of claims 9, 10, 17, 18 and 20, the Examiner has referred to the U.S. patents (1) to

Mori, et al., No. 6,420,437, (2) to Dobrozsi, No. 6,319,513, (3) to Nakamura, et al., No. 5,759,251, (4) to Smigel (III), No. 5,041,280 and (5) to Wagner (II), No. 5,597,554. While the Examiner has not indicated how these patents (1)-(5) are being applied in the obviousness-type double patenting rejection using the subject matter claimed in No. 6,231,343, apparently the listed U.S. patents (1)-(5) constitute the "prior art describing encompassed species of thickening agents as apt for the claimed composition of the method".

Mori, et al. discloses a titanium dioxide sol and a method of producing the same, the sol including 50-100 parts by weight of titanium dioxide colloidal particles charged with negative electricity and 5 to 50 parts by weight of a complexing agent and 1-50 parts by weight of an alkaline substance. This patent discloses that the sol has a use as a ceramic coating material, e.g., on a metal or paper surface, usable as a coating material for articles. Note, for example, column 2, lines 32-36 and column 11, lines 28-41. It is respectfully submitted that this patent provides no evidence of using species of thickening agents "as apt for the claimed composition of the method" of the above-identified application.

Dobrozsi discloses oral liquid pharmaceutical mucoadhesive compositions, these compositions adhering to surfaces having an adherent mucus layer. Note column 1, lines 29-32; see column 2, lines 33-55. It is respectfully submitted that Dobrozsi discloses pharmaceutical compositions for retention on mucus layers, and would not have disclosed or suggested species of thickening agents "apt for the claimed composition of the method" in the above-identified application.

Nakamura, et al. discloses a titanium dioxide ceramic paint suitable for coating glass, metal, ceramic and plastic materials. See column 1, lines 7-13; note

also column 2, lines 46-59. Here also, it is respectfully submitted that this patent, even in light of the subject matter claimed in U.S. Patent No. 6,231,343, would not have suggested thickening agents "apt for the claimed composition of the method" claimed in the above-identified application.

Smigel (III) discloses a toothpaste composition adapted not only for cleaning natural teeth but also composite filling material as well, and which contains substances for preventing tooth decay, the toothpaste composition being defined most generally in the paragraph bridging columns 1 and 2 of this patent, this patent disclosing that the composition includes a thickening agent that can be cornstarch and a gelling agent, the gelling agent being cellulose gum. Note column 2, lines 34 and 35.

Wagner (II) discloses a system employing a mixture of conventional toothpaste in combination with a dentifrice preparation having a peroxide compound as an active constituent, whereby a quantity of dentifrice comprising a peroxide compound as an active ingredient is placed upon the bristles of a toothbrush along with a quantity of conventional toothpaste; this patent discloses that the peroxide compound-containing dentrifice may comprise a tooth whitening dentrifice sold under the registered trademark STAY-WHITE, which includes a blend of from about 2% to 35% cornstarch, which functions as a gelling agent, a thickener, a filler and a binder, among other agents. Note column 1, lines 13-16 and 47-52, and column 2, lines 42-59.

It is respectfully submitted that each of Smigel (III) and Wagner (II) are directed to toothpaste materials, including, for example, thickeners in order that the composition retains its shape on a toothbrush. It is respectfully submitted that one

of ordinary skill in the art concerned with use of a tooth bleaching composition used as in No. 6,231,343 (that is, where the composition is coated and retained on a tooth surface and irradiated with light) would not have looked to the teachings of Smigel (III) and/or Wagner (II).

In any event, it is respectfully submitted that the subject matter claimed in No. 6,231,343, even in light of, for example, the teachings of the "prior art" referred to on pages 4 and 5 of the Office Action mailed January 15, 2003, would have neither taught nor would have suggested the method using a composition with relatively small amounts of titanium dioxide and relatively small amounts of the thickening agent, with the composition having the viscosity, as in claim 1; or a method as in the present claims wherein the composition includes hydrogen peroxide and the thickening agent is hectorite.

Applicants respectfully traverse the provisional obviousness-type double patenting rejection of claims 9, 10, 17, 18 and 20 over claim 1 of copending Application No. 10/109,868.

Initially, Applicants respectfully traverse the conclusion by the Examiner that claim 1 of Application No. 10/109,868 and the method claims of the above-identified application "overlap in scope to the same invention". Claim 1 of No. 10/109,868, as set forth in Published Application No. 2002/0177097, defines a system for bleaching discolored teeth, and includes, inter alia, an irradiation energy of a specified wavelength and a ratio of irradiation energy of wavelengths 380-420 nm with respect to the irradiation energy of wavelengths 200-800 nm. In contrast, the present method claims define use of a tooth bleaching agent including, in addition to titanium dioxide and a chemical compound generating hydrogen peroxide, a thickening

agent, with specific amounts of titanium dioxide and of the thickening agent being used, and the composition having a specific viscosity. Particularly in view of the system defined in the published application, using specified light energy, as compared with the method of using a specified composition of the present claims, the Examiner clearly errs in concluding that the claims overlap in scope to the same invention. Clearly, different statutory classes of invention are claimed respectively in the claims provisionally rejected in the above-identified application and in claim 1 of the published application.

In any event, and for the same reasons as discussed previously with respect to U.S. Patent No. 6,231,343, it is respectfully submitted that one of ordinary skill in the art concerned with the subject matter of claim 1 of the published application, directed to a system for bleaching discolored teeth by irradiating light to a surface having a coating of a specified composition therein, would not have looked to the teachings of the various documents applied by the Examiner (that is, Wagner (II), Smigel (III), Mori, et al., Dobrozsi and Nakamura, et al.), which are directed to different areas of technology; and, in any event, even if the teachings were properly combinable, the subject matter of claim 1 of the published application, even together with the teachings of the five listed prior art patents, would not have disclosed use of a composition having, inter alia, amounts of titanium dioxide and of the thickening agent, or viscosity of the composition, set forth in claim 1 of the above-identified application; or, more specifically, wherein the thickening agent is hectorite (note claim 23) and the chemical composition generating hydrogen peroxide is hydrogen peroxide. See method claim 24.

Applicants respectfully submit that all of the claims now presented for

consideration by the Examiner patentably distinguish over the teachings of the references as applied by the Examiner in rejecting claims in the Office Action mailed January 15, 2003, that is, the teachings of the U.S. patents to Ishibashi, et al., No. 6,231,343, to Wagner, No. 5,302,374 (Wagner (I)); to Wagner, No. 5,597,554 (Wagner (II)), to Smigel, No. 4,603,045 (Smigel (I)); to Smigel, No. 4,690,776 (Smigel (II)), to Smigel, No. 5,041,280 (Smigel (III)), to Dobrozsi, No. 6,319,513, and to Cornell, No. 5,032,178, International (PCT) Application (published) No. WO99/15143, Japanese Patent Document No. 11-92351, and Japanese Patent document No. 51-59097, under the provisions of 35 USC §102 and 35 USC §103.

Initially, Applicants note the reference by the Examiner to the teachings of each of Dobrozsi, Wagner (I-II) and Smigel (I-III), with respect to the anticipation rejection, as set forth on page 6 of the Office Action mailed January 15, 2003. Clearly, reference to these six references in connection with an anticipation rejection over either of U.S. Patent No. 6,231,343 or No. WO 99/15143 is improper under 35 USC §102, which requires, under circumstances such as the present, that the teachings within a single document disclose the claimed invention.

In any event, it is respectfully submitted that these references as applied by the Examiner would have neither taught nor would have suggested such a tooth bleaching composition, or such method for bleaching a discolored tooth using this tooth bleaching composition, as in the present claims, including wherein the composition comprises the recited components including the thickening agent, with the titanium dioxide being included in an amount of 0.001 to 10% by weight and the thickening agent being included in an amount of 1-5% by weight, the composition

having a viscosity in a range of 1000 to 100,000 centipoise. See claim 1; note also claims 9, 17 and 20.

Furthermore, it is respectfully submitted that these applied references would have neither disclosed nor would have suggested such tooth bleaching composition, or such method for bleaching a discolored tooth, as in the present claims, having the specified components in the recited amount, with the composition having the recited viscosity, and wherein the composition includes hydrogen peroxide as the chemical compound generating hydrogen peroxide in aqueous solution and the thickening agent is hectorite. See claim 23; note also claim 24.

Moreover, it is respectfully submitted that these references as applied by the Examiner would have neither disclosed nor would have suggested such tooth bleaching composition as in the present claims, including the more specific amount of titanium dioxide as in claims 28 and 29, or wherein the composition has the more specific viscosity as in claim 30.

Furthermore, it is respectfully submitted that the teachings of the applied references would have neither disclosed nor would have suggested such tooth bleaching composition as in the present claims, wherein the titanium dioxide is in particulate form, coated with calcium phosphate. See claim 26.

Moreover, it is respectfully submitted that the teachings of the applied references would have neither taught nor would have suggested the other aspects of the present invention as in the remaining claims, including (but not limited to) the thickening agent as in claims 4-7 and 13-15.

The present invention is directed to tooth bleaching compositions, and methods for bleaching teeth by photocatalytic action using such tooth bleaching

compositions.

In recent years, there have been increasing demands for aesthetic improvements in teeth, including removal of discoloration thereof. Several methods have been proposed as methods for aesthetic improvement of discolored teeth, as described on pages 2-6 of Applicants' specification. As one technique, there has been proposed the combined use of titanium dioxide having photocatalytic action and low concentration aqueous solutions of hydrogen peroxide. Note the sole full paragraph on page 6 of Applicants' specification.

However, using prior techniques, it has been very difficult to supply the surfaces of teeth with sufficient amounts of bleaching agent, so that there has been unsatisfactory bleaching results. Moreover, where, for example, a paste type of bleaching agent has been used by increasing content of titanium dioxide, the increased content interferes with the photocatalytic action because the titanium dioxide is non-transparent against the irradiation light.

Against this background, Applicants provide a tooth bleaching composition, and a method of application thereof to bleach teeth, which avoids problems in connection with previously known compositions. Specifically, Applicants have found that by utilizing relatively small amounts of the titanium dioxide (that is, titanium dioxide in an amount of 0.001-10% by weight), and also using a thickening agent, in an amount of 1-5% by weight, and providing a composition having a viscosity in a range of 1000 to 100,000 centipoise, a tooth bleaching composition is provided which can effectively be retained on teeth for a sufficient amount of time to achieve a bleaching effect, while, for example, amount of titanium dioxide is sufficiently low so as to avoid interference of the non-transparent titanium dioxide with the

photocatalytic action. Note, for example, the sole full paragraph on page 15 of Applicants' specification. See also the paragraph bridging pages 8 and 9 of Applicants' specification.

In addition, by coating the surface of the titanium dioxide with calcium phosphate, affinity of the titanium dioxide to the tooth surface is improved. Note page 9, lines 9-11 of Applicants' specification.

Applicants also provide a specific bleaching agent together with a specific thickening agent, providing advantageous results in bleaching. Note, for example, the first and second full paragraphs on page 12 of Applicants' specification.

Moreover, by utilizing a composition having a viscosity within a range of 1000 to 100,000 centipoise, retention of the bleaching composition on the teeth of a patient is satisfactory, keeping a reasonable amount of the bleaching constituent on the teeth; for example, using a viscosity in the range as in the present claims, no sagging of the bleaching composition applied to the tooth's surface occurs where the tooth surface is at an angle of 45° to the horizontal level. Note the paragraph bridging pages 12 and 13 of Applicants' specification.

U.S. Patent No. 6,231,343 to Ishibashi, et al. discloses a method for bleaching discolored teeth, as well as a bleaching agent therefor. The method includes the steps of applying a solution/paste of a titanium dioxide powder and hydrogen peroxide solution onto the surface of the discolored tooth, and irradiating this area with light to bleach the tooth based on the resultant photocatalytic action. See column 4, lines 27-32. Note also column 5, lines 8-20. This patent further discloses that at this time, fabric, paper, glass cloth, ceramic paper, an organic gel, an inorganic gel or the like can be impregnated with the bleaching agent described

in this patent, that is, a solution or paste of the aqueous hydrogen peroxide and titanium dioxide having photocatalytic action, and the impregnated product can be applied to the dental surface and irradiated with light. See column 5, lines 53-59.

Note that the application from which U.S. Patent No. 6,231,343 issued is a National Stage application of the application published as No. WO99/15143; and as seen by the Abstract of this published international application, this patent document discloses a method for bleaching a discolored tooth and a bleaching agent for use in this method, with the bleaching agent including a combination of titanium dioxide which produces a photocatalytic action upon exposure to light with hydrogen peroxide solution as the active ingredient.

It is respectfully submitted that neither of the two references applied under 35 USC §102 on page 6 of the Office Action mailed January 15, 2003, would have disclosed or would have suggested the presently claimed composition, including, inter alia, the thickening agent in addition to the titanium dioxide and compound generating hydrogen peroxide, and particularly amounts of titanium dioxide and thickening agent, and also viscosity of the composition, as in the present claims, and advantages thereof.

The Examiner contends on page 6 of the Office Action mailed January 15, 2003, that each of Ishibashi, et al. and the corresponding published international application discloses that the titanium dioxide and hydrogen peroxide "can be formulated with any inorganic gel or organic gel carrier (which is a synonym of 'thickening agent')". However, it is emphasized that Ishibashi, et al. discloses that the bleaching agent (aqueous hydrogen peroxide and titanium dioxide powder) can be impregnated into the organic gel or inorganic gel. Such disclosure would have

neither taught nor would have suggested, and in fact would have taught away from, a composition as in the present claims, including the relatively small amount of thickening agent (that is, amount of 1-5% by weight).

Reference by the Examiner to the U.S. patents to Dobrozsi, Wagner (I-II) and Smigel (I-III) in connection with the rejection under 35 USC §102, set forth on page 6 of the Office Action mailed January 15, 2003, is noted. However, as indicated previously, application of these five references together with Ishibashi, et al. or the corresponding published international application, in connection with the anticipation rejection, is clearly improper.

In any event, it is respectfully submitted that the Examiner has not indicated any motivation for using the teachings of Dobrozsi, Wagner (I-II) and Smigel (I-III) together with the teachings of Ishibashi, et al. and the corresponding published international application. In this regard, it is noted that the Wagner references are directed to a conventional toothpaste dispensed on a toothbrush, the composition including a tooth whitening dentifrice sold under the registered trademark STAY-WHITE which includes a filler. See column 1, lines 44-51 and column 2, lines 47-64 of Wagner (I), and column 1, lines 47-52 and column 2, lines 42-57 of Wagner (II). It is respectfully submitted that the thickener in the Wagner references is provided for retaining the toothpaste on a toothbrush from which it is applied to the teeth.

Smigel also discloses a toothpaste composition adapted not only for cleaning natural teeth, but composite filling material as well, the toothpaste including, inter alia, cornstarch and cellulose gum as thickening agents and titanium dioxide as a whitening agent. See column 1, line 49 to column 2, line 9, and column 2, lines 24-25 and 42 of Smigel (I). Note also column 1, line 54 to column 2, line 8, and column

2, lines 33, 34 and 51 of Smigel (II). See further column 1, line 58 to column 2, line 25, and column 2, lines 34 and 35, of Smigel (III).

Noting that both of the Wagner references and all three of the Smigel references disclose a toothpaste, e.g., dispensed on the teeth from a toothbrush, it is respectfully submitted that the thickener is used to provide a paste-like texture for retention of the composition on a toothbrush; and it is respectfully submitted that the teachings of these references, even in light of the teachings of Ishibashi, et al. and of the corresponding published international application, would have neither taught nor would have suggested the presently claimed composition including the thickening agent, and in particular including amounts of thickening agent and of the titanium dioxide, together with viscosity of the composition, achieving desired retention on teeth for bleaching purposes while providing sufficient bleaching agent to the teeth, and achieving sufficient photocatalytic effect with relatively smaller amounts of titanium dioxide used to avoid interference with irradiated light.

Dobrozsi, also referenced by the Examiner in connection with the anticipation rejection on page 6 of the Office Action mailed January 15, 2003 (in combination with the teachings of Ishibashi, et al, or the corresponding published international application) discloses oral liquid pharmaceutical mucoadhesive compositions, for retention on adherent mucus layers as described in column 1, lines 29-32 of this patent. The composition is described most generally in column 2, lines 33-55.

It is respectfully submitted that this patent, disclosing compositions for retention on mucus layers, would have neither taught nor would have suggested, either alone or in combination with the teachings of Ishibashi, et al. and the corresponding published international application, incorporating thickeners in

compositions for bleaching discolored teeth, much less specific amounts of the thickening agent and titanium dioxide as in the present claims, or viscosity of the present composition as in the present claims, and advantages thereof.

Moreover, it is noted that the pharmaceutical compositions of Dobrozsi referred to various colloidal particles including silica, titanium dioxide, clay and mixtures thereof. That is, this patent treats titanium dioxide, silica and clay as alternative materials. As can be appreciated, according to the present invention the titanium dioxide constitutes a photocatalyst material, yet should only be used in relatively limited amounts so as not to interfere with the irradiated light. Particularly in light thereof, and the equivalence of materials in Dobrozsi, it is respectfully submitted that even assuming, arguendo, the teachings of Dobrozsi were properly combinable with the teachings of Ishibashi, et al. and its corresponding published international application, such combined teachings would have neither disclosed nor would have suggested the present invention.

Applicants respectfully traverse the rejection of all of their claims under 35 USC §103 as unpatentable over JP 11-92351 (Document 1), U.S. No. 5,032,178 to Cornell Document 2), JP 60-75413 (Document 3) and JP No. 51-59097 (Document 4). It is respectfully submitted that the combined teachings of these references would have neither taught nor would have suggested the presently claimed tooth bleaching composition and method, and, particularly, wherein the composition includes the thickening agent, especially in amounts of titanium dioxide and of thickening agent as in all the present claims, with the composition having the viscosity as in the present claims, and providing advantages as discussed previously.

As is clear from the last full paragraph on page 6 of Applicants' specification, JP No. 11-92351 discloses bleaching compositions containing titanium dioxide and low concentrations of aqueous solutions of hydrogen peroxide. As is clear from the face of U.S. Patent No. 6,231,343, this U.S. patent corresponds to No. 11-92351. It is respectfully submitted that No. 11-92351 would have neither disclosed nor would have suggested the combination of components of the composition as in the present claims with amounts of thickening agent and titanium dioxide as in the present claims, or viscosity of the composition, and advantages achieved thereby; or the other aspects of the present invention as in the remaining claims, and discussed previously.

It is respectfully submitted that the other references as applied by the Examiner would not have rectified the deficiencies of No. 11-92351, such that the presently claimed invention as a whole would have been obvious to one of ordinary skill in the art.

Cornell discloses a dental composition and method for bleaching vital and non-vital teeth, the dental composition including a non-aqueous (first) component to be adapted to be mixed with a concentrated aqueous solution of hydrogen peroxide to form an aqueous paste or gel for direct in-situ application to the teeth to be bleached, with the first component including in combination an inert silica gelling agent, a catalytic accelerator, an agent for providing thixoplasticity and thickening properties to the composition, and means for indicating completion of the bleaching treatment of the teeth. See column 2, lines 40-55. Note also the Table in column 5, disclosing an amount of GANTREZ in the composition.

JP No. 6-75413 discloses a dentifrice composition containing 0.5-5 weight %

of a binder comprising a montmorillonite; 10-35 wt.% of an abrasive such as a silica-based abrasive; and, if necessary, a surface active agent, a sweetener, a perfume, a preservative, etc., the viscosity of the composition being adjusted to less than 600 poise, preferably 200-500 poise.

JP No. 51-59097 discloses a gelled composition containing mainly hectorite clay, in which the clay is homogeneously mixed with a synthetic compound containing fluorine, tetrasodium pyrophosphate as a deflocculating agent, sodium lauryl sulphate as a foaming agent, glycerine as a moisture-retaining agent and water, the composition being useful for producing toothpaste.

Even assuming, arguendo, that the teachings of Documents 1-4 as applied by the Examiner were properly combinable, such combined teachings would have neither disclosed nor would have suggested the presently claimed invention, including components and amounts of titanium dioxide and thickening agent, and viscosity of the composition, and advantages thereof as discussed previously; or other aspects of the present invention as discussed previously, and advantages thereof.

With respect to viscosity, attention is respectfully directed to the enclosed (unsigned) Declaration Under 37 CFR § 1.132 of Mr. H. Kurata. This Declaration shows viscosities of the materials in Examples 7, 8 and 12 of the above-identified application. The signed Declaration will be submitted when received in the offices of the undersigned.

In view of the foregoing comments and amendments, reconsideration and allowance of all claims remaining in the application are respectively requested.

Attached hereto is a marked-up version of the changes made to the claims by

the current Amendment. The changes are shown on the Attachment captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 01-2135 (Case No. 396.40960X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Please amend the claims presently in the application as follows:

1. (Amended) A tooth bleaching composition comprising titanium dioxide in an amount of 0.001 to 10% by weight, the titanium dioxide initiating photocatalytic action with light irradiation, a chemical compound generating hydrogen peroxide in an aqueous solution, and a thickening agent, in an amount of 1 to 5% by weight, the composition having a viscosity in a range of 1,000 to 100,000 centipoise.